

CLAIMS

What is claimed is:

1. A flat-panel display (FPD) encapsulation apparatus, at least comprising:
 - a chamber having an airtight space to provide a low-pressure environment; and
 - a pressing mechanism disposed within the chamber, wherein the pressing mechanism is operated in the low-pressure environment.
2. The encapsulation apparatus of claim 1, which is used to encapsulate a first substrate and a second substrate, wherein the chamber comprises:
 - a housing, which connects to the pressing mechanism, wherein the second substrate is provided in the housing and attached to one end of the pressing mechanism, and the second substrate is moved in the housing according to the pressing mechanism;
 - a curing device disposed next to the housing and having a supporting portion to support the first substrate, wherein the curing device and the housing form an operating space; and
 - a vacuum device, which decreases the pressure of the operating space to form the low-pressure environment.
3. The encapsulation apparatus of claim 2, wherein the first substrate is a cover substrate, and the second substrate is an electroluminescent substrate.
4. The encapsulation apparatus of claim 2, wherein the chamber further comprises:
 - a controlling device, which controls the vacuum device to adjust the pressure of the operating space.
5. The encapsulation apparatus of claim 2, further comprising:

a dispensing mechanism, which forms an adhesive on the first substrate.

6. The encapsulation apparatus of claim 5, wherein the first substrate attached the second substrate with the adhesive.
7. The encapsulation apparatus of claim 5, wherein the adhesive disposed on the first substrate is a closed loop or frame.
8. The encapsulation apparatus of claim 5, wherein the adhesive disposed on the first substrate has a gap for air venting.
9. The encapsulation apparatus of claim 1, further comprising:
an atmosphere controlling mechanism, which controls moisture and oxygen in the airtight space.
10. The encapsulation apparatus of claim 9, wherein the atmosphere controlling mechanism inputs inert gas into the airtight space to control moisture and oxygen in the airtight space.
11. A method for encapsulating a flat-panel display (FPD), comprising:
providing a first substrate;
forming an adhesive on a surface of the first substrate;
providing a second substrate, wherein the second substrate is aligned with the first substrate and faces to the surface of the first substrate formed with the adhesive;
providing a low-pressure environment to the second substrate and the first substrate with the adhesive; and
pressing the first substrate and/or the second substrate to bind the first substrate and the second substrate under a low-pressure environment.

12. The method of claim 11, wherein the first substrate and the second substrate are positioned in an airtight space.
13. The method of claim 12, wherein moisture and oxygen in the airtight space are controlled by an atmosphere controlling mechanism.
14. The method of claim 13, wherein the atmosphere controlling mechanism inputs inert gas into the airtight space to control moisture and oxygen in the airtight space.
15. The method of claim 11, further comprising:
crosslinking the adhesive after the first substrate and the second substrate are bound.
16. The method of claim 15, wherein an UV light beam is used to crosslink the adhesive.
17. The method of claim 11, wherein the adhesive formed on the first substrate is a closed loop or frame.
18. The method of claim 11, wherein the adhesive formed on the first substrate has a gap for air venting.
19. The method of claim 11, wherein the first substrate is a cover substrate, and the second substrate is an electroluminescent substrate.
20. The method of claim 11, wherein the pressure of the low-pressure environment is controlled by a controlling device.